



**SUMMARY RECORD**  
**Marine Fisheries Administrative Committee**  
**Public Meeting**  
**November 1-3, 2016**  
**Silver Spring, Maryland**

**OVERVIEW**

The fall 2016 Marine Fisheries Advisory Committee (MAFAC) meeting took place in Silver Spring, Maryland, Oregon over the three day period of November 1-3. NOAA Fisheries was represented by Paul Doremus, the Deputy Assistant Administrator for Operations, Heidi Lovett, NOAA's Policy Analyst, Jennifer Lukens, the Director of the Office of Policy, Alesia Read from the Office of Communication, Eileen Sobeck, the Assistant Administrator for Fisheries, the Assistant Regional Administrator for Sustainable Fisheries of the West Coast Region of NOAA Fisheries.

Julie Morris served as Acting Chair of MAFAC. The meeting opened by welcoming the 23 returning members: Ted Ames, Terri Beidman, Julie Bonney, Dick Brame, Heather Brandon, Columbus Brown, John Corbin, David Donaldson, Randy Fisher, Liz Hamilton, Rob Jones, Micah McCarty, Julie Morris, Mike Okoniewski, Bob Rheault, Henry Sesepasara, Peter Shelley, John Stein and Pam Yochem, Erika Feller, Peter Moore, Harlon Pearce, Jim Parsons, and Raimundo Espinoza.

Over the course of the meeting, the following priorities and activities pertinent to NOAA Fisheries were discussed in detail:

- Strategic Program Reviews including the Strategic Planning, Budget and Program Management.
- Ecosystem-based Fisheries Management
- Social and Economic Community Impacts
- Climate and the value of Vulnerability analyses.
- Updates on Communication, Recreational Fisheries and Aquaculture Benefits
- Reports were presented from the Assistant Administrator and from the State Directors Meeting and Fisheries Commission
- Fisheries budget outlook.
- Science update
- Future action items and future meeting logistics

This report summarizes the major action items, recommendations and meeting discussion for the three daylong meeting.

**DAY 1 (11/03/2016)**

Beginning Discussions, Introductions, Agenda for the Next Three Days of Meetings: Introductions were made by the members that are attending discussing their posts and positions. The first day of meetings (this day), will include a presentation on National Standard 1 and an update on protected resources as well as two presentations on ecosystem-based fisheries management.

After lunch, subcommittees and working group meetings will take place. These include Ecosystems Approach Subcommittee and Resilience Task 4 Group, and later, the

subcommittee and working group for the Resilience Task 5. There will also be presentations about climate vulnerability analyses.

A brief summary of what will be talked about is given and some administrative issues were addressed including current and future vacancies. Ms. Deb Lambert is introduced. She will be tackling the first item on the agenda, the National Standard 1 discussion.

### **National Standard 1 Discussion**

The Magnusson-Stevens Act is the primary legislation that governs fisheries conservation and management and this year marks its 40<sup>th</sup> year anniversary. Some achievements of the Act are that 91 percent of stocks are not subject to overfishing, 84 percent are not overfished and as of 2000, 40 stocks have been rebuilt.

The Act has 10 National Standards, including the National Standard 1 (NS1) that will be discussed. The Standard states that the “conservation and management shall prevent overfishing while achieving the optimum yield of U.S. fisheries” through a balancing of the two goals. The Act has been revised multiple times in its 40 year lifespan to address various issues.

There are three objectives for revising the guidelines. One is to improve and streamline the guidelines. The second is to address the experience gained through the implementation of the annual catch limits (ACLs) and accountability measures (AMs) from past revisions. Thirdly, revisions to provide flexibility all within the current statutory limits of preventing and possibly ending overfishing have been taken. All changes and revisions will not be all addressed in this discussion but a more detailed redlined version exists on the website that specifies all changes made.

Some measures taken to achieve NS1 include better reporting and required explanations on when a stock is and is not overfished as well as phase in approaches to further limit or control the rate of fishing, all in the name of limiting and stopping overfishing. Furthermore, a carry-over provision for unused quotas has been implemented to prevent possible accidental overfishing with overly eager fishing to get as close to the quote as possible, especially at the end of the season.

Using multiyear averages is also a new strategy that better controls metrics of overfishing versus, for instance, fish mortality rates that could at first glance lead one to believe, in a single given year, that overfishing is occurring when in fact it is not. Using averages, these figures are better controlled and assessed to determine whether overfishing is or is not occurring.

The guidelines also allow for standards in rebuilding overfished populations by setting a minimum amount of time needed to rebuild as well as maximum times needed to rebuild. Another standard time beyond the minimum and maximum is the time needed to replenish if fishing goes down to 75 percent. Which method is used will be based on which is the most reasonable for the biological data regarding the populations in question. These plans can be discontinued if it is later found that the populations in question were actually not overfished. In other words, they are not absolute. Miscalculations can occur, so this provision is important.

In the question and answer period following the NS1 presentation, there was some concern toward the definition of what is and is not considered a data-poor stock. There is no standing definition, since it is too fluid to concretely define. There is a slight concern in regard to possible favoritism of specific fisheries, but this does not seem to be a large problem. The general

consensus is that the changes are impressive and positive. Some concerns still remain on the implementation of the rule since the breadth of the rules applies to many different sub agencies.

### **Updates from the Office of Protected Resources**

Donna Wieting, Director of the Office of Protected Resources first presented the results and recommendations from both the National Recovery Program Review and MAFAC's Recovery Action Retrospective Analysis. The focus of the presentation was on those recommendations that were similar. A second presentation was made on the treatment of climate change in NMFS Endangered Species Act decisions.

#### ***Recovery Program***

The first point mentioned is the idea that recovery actions should be linked to recovery criteria. Research has found that the recovery teams are the strongest indicators of success in the recovery planning process.

Secondly, more adaptability in monitoring is important for success including partnerships between agencies and fisheries, and good communications are key. This also helps with jurisdictional issues which is another problem. Communication is the most important element because, as mentioned earlier, data and cooperation will lead to the most optimum results and solutions. The sheer scope of the problems requires great cooperation from all relevant agencies. This extends to communication with the relevant states as well to deal with various things including habitat issues. Administrations like the Office of Habitats have similar goals and it is important to work with them, and other administrations and agencies with similar goals to achieve those goals.

Population factors of various species are mentioned with a five factor test of sorts being alluded to. Population level alone is not the deciding factor especially since various populations have differing characteristics such as longevity. Whales, for instance live much longer than many fish populations and therefore their population level is not dispositive to their status. Before moving on to the next presentation, some concern is shown towards the greater problem of interactions between different parties, an issue that comes up quite a bit due to the size of the problems that are being addressed.

#### ***Treatment of Climate Change***

The presentation covered climate change guidance that has been developed for a number of years. Because there are no certainties when it comes to climate change due to a lack of predictability and reliable data, the efforts in policy direction are basically attempts to mitigate and minimize risk.

Looking at regulatory mechanisms already in place is one area of focus. Essentially, there is not much that can be done about climate change impacts to protected resources beyond preemptive guesses at how climate change will affect species and reactionary actions when said changes happen. The only other possible action is to incorporate climate change into project design.

Many different species, whether located in similar or different environments, are affected differently by climate change. Both geography and the species in question are important factors in assessing climate change and its impacts. Some species also benefit from climate change. The number of species that are affected is not even certain.

## **Presentation on ecosystem based fisheries management (EBFM, Parts 1 and 2)**

The main focus of EBFM is to develop and have a resilient ecosystem. The first step is to implement ecosystem level planning. The open comment period had been a great success, all comments were taken very seriously, and supported creating a policy of a very high level, capable of lasting for years. This presentation was mostly informative and discussed the roadmap to the EBFM policy.

The roadmap is to be updated every five years and upon review, progress in various areas will be assessed. Funding, and whether the funding was sufficient will also be addressed.

There are six myths that are alluded to as potential detractors to ecosystem based fishery management with the first being the idea of not ratchet fishing down. Second, the idea that EBFM is a better platform than just fisheries management plans. Fishery management is ever changing with no particular method being the superior method. An important element of the overall definition of EBFM, of which there are many, is that at the core, EBFM is essentially conventional management down to single species management. The human impact on said species is also very important. Economics, management, social and cultural aspects of the process are all important. The general idea is that ecosystem based fishery management is now achievable because the right policy and tools exist for it to be possible.

## **Columbia Basin Taskforce**

The introduction covered the creation of this new taskforce under MAFAC to provide expert advice and create a communication conduit for geographically based stakeholder input to the MAFAC and the NOAA fisheries on Columbia Basin resource goals. These goals are to integrate long term conservation and harvesting and support regional and local efforts amongst Columbia Basin partners.

People in the region are somewhat tired of all the litigation and positional politics around the topic. The creation of the taskforce is somewhat difficult because the taskforce needs to be representative of all interests. Ms. Cheney explained that the taskforce would be the main venue for various issues that might arise in regard to the Columbia Basin and that the taskforce meetings will be open to the public. The taskforce, in the future, could break into topical sub groups or geographic-based sub groups if need be. The taskforce will report back to MAFAC at regular meetings. Some time is spent discussing the logistics of the task force with some members pointing out that a chair is needed for the taskforce and that some liaison is also needed to ease communication between MAFAC and the taskforce.

Next, there is some talk about long term salmon recovery and pending litigation regarding the hydra system, the Columbia River Power System. A concern is brought up about other agencies concerned with specific things regarding the Columbia Basin and it is explained that there already is great coordination between some of these agencies. Ultimately, as discussions wind down, a motion is made to approve the slate of candidates for the task force. It is unanimously passed and now the next topic in line is the EBFM.

## **Climate Science Strategy**

Climate change has brought a lot of challenges for effective management. Some examples given are droughts, warming oceans, loss of sea ice, rising seas and ocean acidification. The changes are creating a number of changes in marine resource populations. For examples, warming oceans lead different species to change migratory patterns.

Beyond the very serious implications that climate change has on aquaculture, it also impacts economics and society. There are 1.7 million jobs nationally that are tied to fishing which is equal to about 200 billion dollars of output. This is before we even look at the implications for tourism and recreational fishing. Obviously, there are implications to food sources as well since fish is a staple for many regions.

The NMFS climate science strategy has been reviewed by the members and was finalized and released in August of 2015. The strategy is meant to increase production, delivery, and use of climate related information in fulfilling NOAA fisheries' management.

The NMFS vulnerability assessment, the fish stock vulnerability assessment framework is sort of two different parts: exposure and sensitivity. Exposure is, for example, the magnitude of sea surface temperature change in a given region whereas sensitivity is trait based and together, exposure and sensitivity can be combined to assess a species' vulnerability.

The results are next discussed. 82 species of invertebrates and fish in the northeast US shelf ecosystem were looked at. The independent variable, climate change ranges from high to very high based on the climate change of the past 40-60 years. There is a high possibility of changing distribution. They estimate that about half of the 82 species are going to be negatively impacted by climate change. Specifically, cod will be negatively impacted.

The climate change effects intersect with other elements as well. For example, some species behave differently at different life stages. These things were taken into account when developing the climate science strategy.

The focus shifts on the west coast and it is explained that out of the 65 species studied in the west coast, five percent were considered to be highly vulnerable, 40 percent were moderately vulnerable and 28 percent had low vulnerability to climate impacts. In both areas, a lot of the vulnerability is tied to benthic species and species that are less mobile since the highly mobile species can just migrate to more temperate areas.

Fifty eight percent of the species were classified as having a high potential for distribution change with 18 percent in moderate and five percent in the low as well. The anadromous species have the greatest vulnerability while the flatfish have the lowest. The anadromous species were unlikely to adapt well.

Many elements are discussed in relation to the at risk species. The salmon have been observed from when the eggs are laid to adulthood. Chinook, a fish with longer lifespan, was at higher risk and more challenged with climate change effects. The salmon, on the other hand, are more adaptable. Overall, regardless of the species, the general impact of climate change will be negative. There were some questions and discussion about logistics, data gathering, and cooperative research not being used because of issues of accuracy.

There are various points raised about survey methodology and how to optimize it, social media optimization, website optimization and mobile optimization for the survey taking. Some logistical things are discussed more heavily than others, like the survey optimization. There is general agreement that some of these things need improvement.

## **DAY 2 (11/02/2016)**

### **Strategic Planning, Budget and Program Management Subcommittee – Discussion on Draft “Transition” Document**

One goal for the Transition Document is to highlight topics to provide guidance to the new incoming administration and to set the tone for NOAA for the future. This guidance is focused long term for not only the current incoming administration, but for other administrations in the future.

Budget concerns and the lack of resources are brought up in general and more specifically in dealing with problems that face businesses that rely on fishing and fisheries. One such problem is the idea that stocks of fish need to be replenished, need to be monitored and need remain steady. Overfishing and what constitutes overfishing is at issue. Monitoring the stocks is vital because it sets the standard on what is and is not to be considered overfishing. An error in considering a stock as overfished could result in wasted resources that could be better used otherwise and a more critical error of incorrectly labeling something as not overfished could shift the focus elsewhere, putting the overfished stock in greater peril.

The regional office presents some issues due to limited resources which are often highlighted as being a key problem faced quite often.

After some new developments and regulatory problems are very briefly mentioned, including some mention of Antarctica as a potential source of fish populations that migrate, the focus shifts on the successes of the US fishing markets and their management. Though hugely successful when compared to the rest of the world, a problem remains in the promotion of US seafood in the significantly large US seafood market which is one of the biggest in the world. Mr. Brown makes a point that Americans have grown accustomed to having everything year round and therefore have grown accustomed to having imported goods to satisfy said needs in other markets. The fish market is no different with both regional variance and climate variance including but certainly not limited to climate change.

It is also pointed out that the market share will change with changing world demographics, specifically with India, China and parts of Africa enjoying larger and faster growing populations than the United States. Before the bullet points that are presumably still viewable by the people in attendance are discussed in detail, a point is made that what is being discussed at the time is not a finished product but a work in progress.

### **Getting the Full Value of Healthy Products and [Fisheries]**

Getting the full value of healthy products and fisheries is the first thing that is discussed, with the first point being to focus on fisheries and add that to the title.

It is brought up that the general issue could be the balancing act between conservation and usage and finding and implementing the best practices to balance this issue as efficiently as possible. Conservation is a central issue but under the goal of getting full value, it is important to also be able to use the fishing populations to the best possible degree without endangering conservation efforts.

Data efficiency concerns are also highlighted because without good, solid and accurate data, these efforts cannot be achieved as well as possible. Discussion on the Vision 2020 begin, with

concerns that climate change issues were not addressed enough since Vision 2020 was drafted at a time when climate change was not the pressing issue that it is today.

Some concern is shown toward the bureaucratic roadblocks that are faced, specifically the lack of efficiency and how something takes much longer to achieve than initially thought. A potential solution to this is to look at places where there is intersection with industry or stakeholder groups where there has been success. Specifically, co-op efforts in Alaska and risk pool co-ops in whiting are given as possible examples.

There is consensus that the source of the problem is the strictness of the regulations which do not allow much room for adaptability. A potential solution to this is to have more adaptable management. The word “nimble” is used multiple times to explain the type of management desired. Some suggest that this may not be a good idea, pointing to data lags and analytical lags possibly creating confusion if a “nimble” approach is taken.

Basically, fisheries can be sent in the wrong direction if action is taken too fast, before a complete and thorough analysis that takes into account all relevant data can be made. An example to illustrate this is provided in the way of the Gulf of Maine where the cod population was declared to no longer be overfished. This conclusion was ultimately wrong and if nimble action had been taken, there would certainly be massive overfishing.

The large scale of the system essentially leaves no room for quick action, some suggest. There is further discussion on the language that is to be used, with a small focus on the choice to use aquaculture instead of fisheries. Ms. Lovett wants to form a small term subcommittee to write all that was discussed. She is joined by a few members.

A recommendation is made to include a statement in the proposal about EBFM being more comprehensive than the way that fish is managed. There is general agreement that this is a good thing.

There are discussions about the connection between that US economic output in fisheries and the level of resources that are able to manage it in a mandate-driven agency, like NOAA. Monitoring has advanced to the point where there are no more secrets. It is just a matter of knowing where there are larger crops. Some members want a note, front and center, that shows that the US is greatly successful in fishery management and industry regulation and compliance. They want it to be known that NOAA is a solution and not a problem and that they do good work. With this being said, this subcommittee is concluded.

## **Resilience Task Group 6**

There will be three topics of discussion, a data topic, communication and collaboration and a framework actions and emergency actions. A regional, collaborative approach to science in the U.S. will also be looked into for the sake of quicker action, much like what was mentioned earlier.

To begin, a report on the framework actions and emergency actions is shared first. The report is a draft and not a final product. First, examples of ways that framework actions and emergency actions are currently used that assist in making management more nimble and flexible were sought out.

An example provided comes from the Gulf of Mexico where commercial shrimping interacts with juvenile red snapper, causing a problem for snapper management.

Then allocations are mentioned and explained as a compensation technique to make the whole allowable catch to be landed. So if 83 percent of the fishing is supposed to be recreational and 17 percent is supposed to be commercial but one quote is not filled, the remainder can be transferred to the other sector. This is one of many management techniques but it is limited to managing the thresholds near the end of the season where the numbers become more clear.

Another example is given with the bluefin tuna. This is an in-season management approach. Again, the general issue is with data gathering and analysis. It is suggested that the Council staff who implement these management approaches be interviewed for feedback to see if it is really working.

Another federal example that was used was the coastal shark FMP where possession limits are adjusted throughout the year based on the rate of landings of sharks. Other species, like the sea herring, are monitored differently with quotes being divided into seasons with specific days laid out for fishing and landing.

A system somewhat unique to the East Coast where the overall quota is federally set up and the states then divide that quota and spread it out throughout the year. Beyond the examples provided, it is suggested that academic papers and relevant research on in season management and framework actions be included to bolster the conclusions that are sought to be made from the claim.

Norway's Institute for Marine Research and its work is mentioned in some detail. The Institute basically trains people on the ships to essentially be observers on the water for science and data collection purposes. More specifically, they collect samples and otoliths and basically take on the role of research fleets. This is a daily endeavor and they observe much more than just sea life. Aside from tremendous cost cutting and efficiency, there is evidence that this format, which derives data from actual fishermen, is helpful to stock assessments, more so than traditional assessment methods.

Mostly, this is just discussed as information with some members clearly interested in implementing similar efforts. Other assessment techniques are also discussed, specifically one implemented by Iceland.

A problem that stands in the way of such things would be the economics of it. It is explained that basically all fisheries in a given area would essentially pay a tax of sorts. The accumulated funds from this "tax" would then be given to one of the fisheries to use for the scientific research. Research set asides are designated as important to add to development of real time data collection from individual fishermen. Cooperation between agencies and even universities for the sake of finding good data is highlighted as an important goal as well. A trigger based system where frameworks trigger different events without the need to go back to the specific Council and work for multiple years to solve the problem is preferred.

Data is considered to be the most important element and some members even suggest that environmental data is also important.

## **Day 2 Discussions on Columbia Basin Partnership Taskforce Nominations and Subsequent Voting on the Proposed Taskforce**

The previous day's recommendation for the nomination by the Ecosystems Subcommittee is referenced and a vote will be taken on that recommendation. Once the vote is taken, it passes



unanimously. The list will now be recommended to the NMFS Assistant Administrator for full consideration, and chosen participants will all be notified in December so that everyone can prepare in time for the January kickoff meeting.

### **Scheduled Public Comment Period**

There is only one member of the public and no comments are made so the recess takes place.

### **Post-Recess Reports**

After the recess, Ms. Sobeck talks about her time with the rest of the committee as she is leaving soon. She also talks about the general status of things currently and after she leaves. She points out that Mr. Barry Thom is now the new regional administrator in the West Coast. She explains that the position is political in nature and notes she has full confidence that Mr. Thom will continue to do a great job.

Dr. Bill Karp retired recently and in less than 30 days, has been replaced by Dr. John Hare. Dr. John Stein in the Northwest is also going to soon retire as well, and his soon to be vacant position is being interviewed for.

More broadly, Ms. Sobeck talks about the transition occurring around and after the election that coincides with the retirement of all the aforementioned people. Aside from the IUU final regulation, most big ticket items have already gone through the system. With a new team coming with the transition, the usual issues of having a smooth transition come up. Ms. Sobeck bids the team farewell and Ms. Morris echoes that she will be missed.

### **Report from the Commissions**

#### **Pacific States Marine Fisheries Commission**

New survey methodology has been adopted and it is working very well, being ahead of schedule compared to the prior year's relative progress at the same time. Climate change is mentioned once again with a negative impact on lobsters. It is expected that fishing of the lobsters will be cut in half to see if the fishery can bounce back on its own but since it is not an overfishing issue but a climate change issue, the problem may not resolve itself. Alternatively, there are alternatives in changing nothing or stopping fishing totally.

Additionally, climate change has also shifted managed stocks and impacted a lot of the allocation programs already in place. The current allocations are on a state by state basis but date back to the 80s and the 80s landscape and the modern landscape is completely different. Reallocation will create winners and losers since it is a zero-sum game.

Next up, budget concerns are addressed. Some of the smaller states, with smaller tax bases are unable to hire the right amount of people to manage the fish. In addition, the Fair Labor Standards Act have created new overtime pay rules so that will significantly increase the cost of the surveys since people will have to be paid more for overtime and since the surveys take a lot of time to conduct.

Dungeness crab is the most valuable fishing industry in the West Coast and states have not had the authority to manage it for the last 25 years. Though unlikely, it is currently possible for a crabbing ship from Alaska to come down and fish for crab as they wish down the Pacific Coast. There have also been problems with whales and salmon populations as well.

Hatchery systems in the West Coast have also faced a number of lawsuits. The lawsuits have to do with hatchery salmon interfering with and competing with the wild salmon stocks. Disaster relief funds are already being used to address the closures of the Yukon and Kuskokwin. It is also explained that on the West Coast, there are cameras on 37 boats and 15 cameras in Alaska and much like the last meeting months ago, the question is whether cameras can sufficiently replace human observers on these boats or whether the decrease in cost justifies such a replacement. An observer creates a 500 dollar loss per day in wages and other costs since sometimes observers have to be flown in. The pushback comes from the reluctance of the observer program to replace people, which are more reliable and accurate with cameras which are not only less reliable but also experimental in their usefulness.

## **Gulf Coast, Atlantic States**

### **Budget Outlook Presentation**

The budget has fallen in the past and it is expected to fall again in the future. From '10 to '13 the budget has fallen 12.5. The budget has been divided into three primary areas: core capacity investments, advancements in fishery science and management and a limited number of strategic programmatic investments.

The strategic programmatic investments and proposals are being kept lean. Demand for consultations has gone up at a rate in higher excess than the resources. There is also a shift of the Coastal Resiliency Ecosystem grants from fisheries to the National Ocean Service that is not exactly a budgetary decrease but somewhat acts like one.

Since budgetary constraints are always a key issue and since the budget will always be limited, it is stated that it is important to use what budget there is and what resources are available to further priorities through collaboration with others who may have the same goals, including partnerships outside the organization including the non-profit sector.

### **Aquaculture Roundtable**

Seafood supply in the Gulf of Mexico is discussed quite a bit with there being issues at many parts of the supply chain. Overall, there is growth in seafood and in the Gulf as well, however. Tangentially, the lack of useful data is brought up again.

Various natural and unnatural disasters, such as Hurricane Katrina and the oil spill are mentioned as reasons why domestic seafood has fallen in stock but there is enough demand for domestic seafood to where this problem should be addressed as soon as possible and as effectively as possible. There is a sense of cohesion that needs to exist between various types of fishing, both commercial and recreational since they not only play off each other but also affect each other tremendously.

## **DAY 3 (11/03/2016)**

### **Opening and Agenda**

After morning pleasantries, a brief overview of the last day's agenda is given. First on the agenda is the science update by Richard Merrick. After Dr. Merrick gives the update, a short report from the Ecosystems Approach Subcommittee will be given followed by a report from the Recreational Fisheries Subcommittee.

After a break, a report from the Strategic Planning Budget and Program Management Committee will be given with regards to the transition document after which the Resilience working group reports will also be discussed. These reports will be interrupted by the lunch break if necessary and will continue after lunch.

Finally, the closing session will summarize and review any decision that has been made and figure out the action items and the subsequent steps going forward. It is also noted that some people may have to leave at 2:00 in the event that changes any of the planned events.

## **Science Update**

Before the substantive part of the update, it is explained that Dr. Merrick, along with other center directors will soon be retiring. The newest northeast director will be a Dr. John Hare. Dr. Stein will also be retiring so a replacement for him is being sought out. These things were mentioned before, in previous days, but are being reiterated by Dr. Merrick because of their importance and because of his insight, since he was interviewing people for some of these replacements. Some time is also spent in assuring the rest of the members that the current crop of potential replacements is very good and qualified to take over, since the turnaround will be especially high over the next few years, up until '17 and '18 when more people are expected to retire. Next up is the substantive part of the science update which will touch on the GAO report and larger climate science strategy some more. It is acknowledged that some of the things that follow have already been discussed in previous days.

Approximately a year prior, the national strategy was launched. The national strategy is a very high level collective effort that included input from regional offices, some council input and the centers. As the name might suggest, this was supposed to be a national strategy and was not meant to work at a regional level.

Despite this, the plan included the councils making regional plans and identifying key actions that would then need to be implemented over the next five years. The climate vulnerability assessment was one of the key things of the plan. Different management strategies rise from different regions and centers and it is important to evaluate the effectiveness of these management strategies against the changing environment and evaluating what the outcomes of these different strategies would be as a result.

Congress has requested, through GAO, that a review be made of how advice to Fisheries management is being provided.

The climate vulnerability analysis shows that a lot of stocks are moving and that this will change allocation. More assistance needs to be provided to the councils who are not quite at the level of managing all this by themselves.

Some questions are asked on the problems with surveying and it seems that phone surveys, which were the go-to method are becoming obsolete with more people switching from landlines to cell phones and landlines becoming an anachronism. It is much harder to get people's cell phone numbers and there may be bias in who responds to other forms of surveys, by 2017, it is expected that only mail surveys will be conducted. In the meantime, phone surveys will continue all throughout 2017 in junction with mail surveys.

Allocation and reallocation issues continue to be a problem but efforts are being made to rebalance the allocations based on data sets that are anywhere between 10 and 30 years old.

Some questions are asked about the new surveying techniques which are in transition. Dr. Merrick assures that the mail surveys are effective and explains that they are sent to coastal zip codes and people who already have stated that they will, for example, obtain a seawater fishing permit. Some suggest other methods such as creating an app for this purpose. The app might be used less frequently but the data will be instant. The thought is to develop a new version or next generation stock assessment improvement plan. This, along with some more stock assessments and the need to do more is discussed. Generally, the idea is that there is always something more that needs to be done. Dr. Merrick is thanked for his presentation, contributions and all his time spent over the last couple of years now that he is retiring.

## **Subcommittee Reports**

### **Ecosystems Approach Report and the**

Collaboration between NOAA and MAFAC is identified as paramount. MAFAC might help NOAA work on developing some models and protocols about how to evaluate and deal with these tradeoffs as they came up during implementation. There are also some concerns about EBFM as an area that should be a focal point of the transition memo. The importance of developing the structured analysis of tradeoffs is something that the Agency (NOAA) will have to deal with as EBFM evolves.

Lastly, the subcommittee felt that continued discussions with the Agency on MAFAC would be useful post the transition to engage NOAA and see how more collaboration can be useful both in the short and long term.

### **Recreational Fisheries Report**

The Recreational Fisheries Subcommittee recommends that MAFAC asks NOAA to give a briefing on the allocation policy to MAFAC as a whole. NOAA is proposing to eliminate angler participation estimates from their report and the committee has unanimously agreed that they would like to see these participation estimates continue as they are both helpful in economic surveys and useful to constituents.

A list of upcoming meetings is mentioned including the National Marine Sanctuaries Advisory Committee which will mark the first time that recreational fisheries will be addressed. There are talks about more detailed and updated policy, possibly in time for an upcoming March meeting. Furthermore, the importance of citizen science is highlighted as being useful not only for information and research but also for improving communication between the agencies and people. Some members think there are alternatives to better policy such as adopting a best management practices approach where the best practices are identified and subsequently used in an attempt to get the best possible data available. This is preferred to the policy driven approaches and even the citizen science approaches because the results would be more reliable and there is precedent with some species, like oysters where this has worked swimmingly in the past. Other concerns exist with citizen science being advocacy science

### **Strategic Planning Budget and Program Management Subcommittee**

The committee's work is to develop a transition memo for the incoming administration, the incoming transition team for NOAA and the incoming political leadership for NOAA that will likely be a byproduct of the then upcoming election.

There have been two meetings that together have produced a working draft. The target is to complete a draft by December. The draft will be five pages and will be used to introduce MAFAC to the new administration and explain the major issues that face the U.S. Fisheries and aquaculture.

The logistics of the deadline for the draft are discussed with various suggestions being mentioned. There will be many meetings via phone call, in person, and email exchanges that will take place before the loose December 9<sup>th</sup> deadline of this draft.

During this time, anyone that wants to make any suggests and comments for the transition memo for the incoming administration can do so. The most important elements highlighted are the focus on the new administration's understanding of the current problems, with little allusion to what the past administrations have done since that is not pragmatically relevant. The primary focus is to educate the incoming administration, transition team for now and the political leadership to the issues that are most important so that appropriate action can be taken. Obviously, the importance of this draft cannot be understated as it will shape the ideas and subsequent actions taken by the incoming administration.

### **Aquaculture based Tools to Enhance Fisheries Resiliency During Climate Change**

The tasks and subtasks were broken down into several areas including aquaculture as tool for fisheries enhancement and restoration. There was particular concern about any recommendations to do with hatchery enhancement work and the potential impacts on wild genomes and much care was given in the advocacy for a responsible approach to fishery management.

Then, the group was tasked to look at potential aquaculture approaches to mitigate the impacts of ocean acidification.

There are three specific areas where potential opportunities were identified. One of these areas is the idea that hatcheries can be used for the early life cycles of the organisms and hatcheries can be used to buffer the seawater.

It was also shown that there is opportunity for selective breeding to select the species or select for lines that are resilient to acidification. The final potential was the use of seaweeds to mitigate local ocean acidification. Mitigation of sea level rises was also considered with some aquaculture technology used to mitigate rising sea levels. This gear is supposed to absorb wave energy but no one has ever really measured how and how much of said wave energy is absorbed.

The final section highlighted was how aquaculture could provide economic resilience with fishing communities. There are still some comments that have not been included in this unpolished version.

A comment is made that wild fish might take away from aquaculture with some fishermen transitioning. The general consensus is that they are complimentary. A point is made that people tend to like local things more than foreign things, including their fish and sources of energy. It is pointed out that this sentiment will relate to different species of fish differently. Even though the draft is not polished, a vote takes place to approve the current plan after a motion is made and seconded. The report is approved unanimously.

## **Resilience Task 6, Fisheries Management:**

During the presentation, it is explained that all the thought processes of the last meeting have been condensed into the three sections of data, communication and collaboration, and use of framework and emergency actions.

In order to achieve the appropriate goals, timely data, a common theme throughout the three days is needed. Citizen science has now been changed to collaborative research for semantic reasons and a need to look at interagency actions is also acknowledged.

More mentions are made for utilizing frameworks that have triggers and emergency situations like oil spills and hurricanes.

## **Resilience Task 5, Communications Update**

The customer survey response has already been great and is expected to exceed expectations. The general takeaways thus far are that people use much more than just the internet to get their information. In addition to this being an interesting and somewhat counterintuitive conclusion, questions rise not only in regard to what is the best way to reach out but also which mechanisms elicit the greatest behavioral change.

The first part of the sub task is to assess the climate related information needs of stakeholders, how NOAA communicates with them and which methods are most useful. This first part is the current focus and what is being worked on. There is hope that more answers are provided in the March/April meetings.

## **Resilience Task 4, Social and Economic Community Impacts**

The proposed outline was tried out and it was found that the outline needed to be improved to understand how the process started, how the problem was identified and what the role of the community and the practitioner would be. Two practitioners have been identified that were heavily involved: Sea Grant and the Island Institute of Maine. There is contemplation of possibly interviewing these practitioners to broaden understanding.

## **Action Items**

A short call is set up for 3:00 p.m. eastern time on January 11<sup>th</sup> of next year. A request that MAFAC had with respect to the NS1 presentation is wanting to understand better if the NS1 rule described alternative approaches that can be used for data-poor stocks.

There was also a request to provide a summary of who receives the mail survey which was mentioned earlier this day. The artificial reefs and citizen science work and a presentation request on the allocation policy are also added to the action items.

An update was requested on next generation stock assessments at the next MAFAC meeting and the future MAFAC conference call after December 9<sup>th</sup> was also mentioned as well as the telephone call on the 11<sup>th</sup> was reiterated.

There is mention of some decisional things that took place at this meeting such as the endorsement of the Columbia Basin Partnership Task Force. Reviewing the aquaculture white paper and the decision about the slate of the Columbia Partnership were also mentioned since the final decisions need to be transmitted up the proverbial chain.

Management strategy evaluations are also mentioned as potential action items for the April/March agenda. It is also mentioned that more action items can be added later on as things start to come together.

### **Discussions about the Next Meeting**

It is proposed that the next meeting take place in March or April as opposed to May since it will be the last meeting for three members. Logistics are discussed including hotel room problems and possibly having the meeting coincide with the Boston Seafood Show which takes place in mid to late March.

Some general points are brought up about future time periods, preferring smaller seating arrangements for subcommittees and having the meetings earlier. The time allocated to lunch was also discussed. No general consensus was made about when and where the next meeting will take place but Boston seems to be the first choice amongst many. Puerto Rico, a venue seldom visited, is also offered as a potential place for the next meeting. Timewise, the meeting is going to take place over three days likely in March around March 20<sup>th</sup> according to the preliminary discussions. There is no concrete plan yet as availability is not yet known.

The meeting is adjourned at 1:40 p.m. on this final day.